[002] This application is a national stage completion of PCT/EP2003/008508 filed August 1, 2003 which claims priority from German Application Serial No. 102 36 089.8 filed August 7, 2002.

[003] FIELD OF THE INVENTION

[004] The invention relates to a nearing arrangement in a gearbox housing ~~having the features of claim1~~.

[005] BACKGROUND OF THE INVENTION

[006] In gearbox housings [[2]], two successively disposed wheels are ~~supported on~~ held upon respective independently rotating co-axial shafts which conventionally have ~~one bearing in each~~ on each of both ends ~~and are~~, one bearing supported in the gearbox housing. ~~This arrangement~~ Such an arrangement known from DE 100 09 486 A1, has the following disadvantages: between the two shafts one intermediate wall of the housing is needed which results in a complicated design of the gearbox housing; said intermediate wall needs axial installation space; with small axial distance to adjacent shafts, the installation space problem becomes still greater with the intermediate wall, since in that case one intermediate ring becomes, in addition, required for the adjacent shaft; both bearings require between the shafts axial and radial installation space; even if both shafts rotate at equal speed and in the same direction, power losses result on [[4]] four bearings and, in case of taper roller bearings, the two shafts have to be separately adjusted with the consequent assembly expense.

[007] US 5,020,385 has disclosed a bearing arrangement in a gearbox housing having one wheel supported upon one first shaft and several wheels disposed upon one second shaft. The wheels situated upon the second shaft can be connected via clutches with said second shaft. Both shafts are disposed co-axial to each other and essentially side-by-side, the first shaft being supported on one end and the second shaft on one opposite end each via one taper roller bearing in the gearbox housing. The second shaft is supported in the first shaft via one roller bearing which can absorb only radial forces.

[008] The problem on which the invention is based is to provide in a gearbox housing a simple, economic and space-saving arrangement for at least [[2]] two successively disposed wheels upon respective independently rotating co-axil shafts with reduced power losses and reduced assembly cost.

[009] The solution results with a bearing arrangement in a gearbox housing. ~~having the features of claim 1. Advantageous developments of the invention are shown in the sub-claims.~~

[010] SUMMARY OF THE INVENTION

[011] According to the invention, one bearing arrangement in a gearbox housing has at least [[2]] two successively disposed wheels upon respective independently rotating co-axial shafts having one bearing on each opposite end which is supported in the gearbox housing. At least one other bearing is provided between one and the other shaft for support of the shafts in each other so that an intermediate wall can be omitted in the gearbox housing. The inventive bearing arrangement essentially offers the following advantages: simpler housing design by omission of the intermediate wall; reduction of the axial installation space by omission of the intermediate wall; reduction of the radial installation space by omission between the shafts of bearings of larger diameter than the shafts; reduction of the axial installation space by space-saving bearings between the two shafts; advantage in cost by more economical axial and radial needle gearings between the two shafts; reduction in weight by omission of the intermediate wall and by lighter bearings between the two shafts; power loss only on outer bearings when both shafts rotate at the same speed and in the same direction; and when using fixed/loose bearings, such as ball/taper roller bearings, the two shafts can be jointly adjusted at reduced assembly cost.

[017] BRIEF DESCRIPTION OF THE DRAWINGS

[018] The invention [[is]] will now be described ~~herebelow~~, by way of example, with reference to ~~preferred embodiments~~ the accompanying drawings in which ~~show~~:

[023] DETAILED DESCRIPTION OF THE INVENTION